



Podcast Session #61

How Your Face Can Affect Your Sleep

With Dr. David Shirazi

In this extended interview, Dr. Christine Schaffner speaks with Dr. David Shirazi, dentist, acupuncturist, and sleep technologist. This segment touches on how sleep shapes our mental-physiological health and even our face. Tune in next week for a discussion about pediatric orofacial development and how to optimize facial development in children.

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Part 1

Dr. Christine Schaffner: Welcome, everyone, to the Spectrum of Health Podcast. I had the pleasure of interviewing Dr. David Shirazi twice. I hope you enjoy our first segment, in which we talk about sleep and our physiological health and how all of this can really impact our facial development and our oral health, and then I asked him to come back because we were starting to talk towards the end of our first segment about pediatrics and pediatric orofacial development, and I wanted him to have a little bit more time to explain that, so I hope you enjoy these two parts. He's a wealth of knowledge, he has so much training and expertise to share with us and a big heart as well, so please enjoy my two podcasts with Dr. David Shirazi.

0:00:41 CS: Welcome, Dr. Shirazi, I'm really excited for you to be on the podcast today.

0:00:47 Dave Shirazi: Oh, well, it's such an exciting time for me to be here with you.

0:00:50 CS: Your work is so important, and I really haven't had anybody on the podcast speak specifically about the whole role of the bite, and how that can really affect sleep, brain function and our lymphatic system. And to be honest, this is one of the most important things I think that we can do with patients, but my recommendations and referrals can be limited because it depends really on the patient's resources within their community and who they have access to, so I'm really excited to educate people about your work, what you do, and how impactful it is, so people can not only come find you, but

also seek this type of work within their community if they don't live in Southern California. I'm really excited for you to be here.

0:01:35 DS: Wonderful, I'm so excited to share info.

0:01:38 CS: Why don't we just dive in and share a little bit about your background, I know you have a unique background in that you're not only a dentist, but you also have degrees in acupuncture and oriental medicine. Can you share a little bit about your background and how you got into all this?

0:01:54 DS: I always joke that this profession chose me rather than I chose it. My mom's a dentist, so I grew up loving dentistry, just working with my hands and helping people because they're wide awake while you're working on them, so it was really challenging. And actually when I was 18, I had a cold, and I had a neurotic Jewish mother and she's like, "Go to the doctor." The doctor wanted to prescribe antibiotics, penicillin, and I said, "Well, this problem's in my nose, right?" He goes, "Yeah." I said, "Well, if the problem is in my nose, isn't it a virus?" He goes, "Yes, probably." "Why are you giving me an antibiotic for the virus?"

0:02:40 DS: I was 18, so this is almost 30 years ago. He said, "Well, the antibiotic will focus on the bugs in your system so that your immune system can focus on the virus." I told my mom, and she's in that age group where you just believe whatever your doctor tells you, you don't even question it. So she said to take it, I took it, I got better. I was a bit of a nerd so I went ahead to the library, remember those things, I went to the library and I looked it up, and even back then, we knew that you shouldn't give an antibiotic for a viral condition, and everyone in my family is a doctor or a dentist. I remember thinking

to myself, "Okay, well, when I become a dentist, I want to learn something more holistic so that when I have a family, I can treat them more holistically."

0:03:32 DS: And so I went to dental school and by the time I got to dental school, I studied Shaolin martial arts, and my instructor really encouraged me to study acupuncture and Chinese medicine. So right after dental school, I came back to LA and I went to Samra, which is the first accredited oriental medicine and acupuncture school, and I loved it, it was amazing. And like I said, I only did it because I did it for myself. I wasn't planning on practicing it. So when I came out, I was doing about 200 hours of continuing education a year just on the dental side while getting my Master's in Chinese Medicine. So then, I was doing orthodontics, and I was finding that in what we call...The traditional term is 'early interceptive orthodontics' or what I would call functional orthodontics, we found that you can not only cure but prevent future problems. The only time you can non-surgically cure sleep apnea in a growing child is with functional orthodontics.

0:04:45 DS: There's literally no other cure that we know of. And of course, you can resolve TMJ problems, craniofacial deformities, the bite, as you said, get the bite what we call a skeletal class I and a dental class I. And as I was learning this, I thought, "Well, great, I'm helping out all these kids." We were just learning about sleep apnea back then, like 20 years ago, and sleep apnea was very, very new, and it seems like in every profession, first we do males, then females, then children, right? So they were the last ones to be studied, and what we found was, children were the most susceptible to sleep disorders because we have two very important stages in our sleep, one is called delta, and one is REM, I'm sure you've heard.

0:05:42 CS: Yes, it's a good review.

0:05:43 DS: Yes. Well, delta, almost 100% of the growth hormone that we'll ever have is from that one stage of sleep, it's over 90%. So in adults, it makes up about a quarter of our sleep. In a child, in a growing child, it makes up about half. And so with REM, we need REM for mental, emotional processing, memory. As you know, we have a lymphatic system in our brains and that is usually in that stage where we're cleaning out our brain with our lymphatic system and our CNS. And because a child's growing brain is 50% delta and 50% REM, roughly speaking, whenever they have an interruption in their sleep from, let's say, breathing... It could be a barking dog as well. But if it's mouth breathing, or choking or whatever it is, we're affecting those really important stages of sleep. A young enough child, if they have one interruption per hour, that's considered severe apnea. In adults, usually we count it as, for an adult male, or a female past menopause, we say if you have an AHI over 30 an hour, you're in the severe category, and even if you have five or less per hour it's considered within normal limits. But not so much with a child.

0:07:25 CS: I don't want to interrupt because this is all such great information and a big part of our work is trying to help people with their sleep. When we're treating chronic illness it's the chicken or the egg, we want to get them sleeping, but of course, a lot of why they're in our office is disruptive to their sleeping. So how do people start identifying, whether it's their child or themselves, that they have a impairment or an imbalance in one of the phases of sleep or if they have sleep apnea? How do you walk people through a diagnosis?

0:08:04 DS: Right, so the very best, and in my opinion only proper way to really know and be specific is with a sleep study. And there's two kinds of sleep

study, there's an in-lab and then there's an at-home. I have a sleep lab with three beds. And we measure everything from their end-tidal CO2 to their brain waves, their heart rate variability, down to movements in their legs. There is more data in one night of sleep that we collect for the patient than there is in any comprehensive blood lab work. There's that detail. In a home sleep study, we're predominantly measuring between four to six ranges of measurement, from blood oxygen, sleeping position, apnea, snoring and et-cetera. And from that we sort of infer if they're getting all the stages that they need. Does that make sense?

0:09:11 CS: That's great. You can do a sleep study at your clinic? You are set up to do that?

0:09:16 DS: I am. I'm a fully functioning sleep lab as well.

0:09:19 CS: How wonderful, there's half the battle. I've known of the in-house or that at-home, but then again there's so much more comprehensive information as you mentioned when you can do it in a clinical setting--but it's not the most comfortable night's sleep at times. But being that your office isn't the traditional conventional sleep study, do you feel like people are more comfortable going through that process in your office?

0:09:44 DS: So my office is a bit different. Most sleep labs kind of look like you're staying at a Motel 6, like you're in a hospital gurney.

0:09:56 CS: Yes, I know. Awesome.

0:09:58 DS: My website is sleepconejo.com. My beds are Tempur-Pedic type of beds. And the rooms are big. It looks like the Four Seasons, and I only have three beds. It's much more comfortable. But I'm very open and up front with my patients about that, because being covered from head to toe with leads doesn't mean you're going to have a normal night's sleep. And our units, the ones that we have are the best in the world in that they're Bluetooth. So the other in-lab studies, you're covered head to toe with these leads, but then you're attached to the head box that's on the night stand. You're very much forced to sleep on your back, or sleep very close to the edge of the bed. With ours, the head box is on your shoulder, almost like a seatbelt collar. And you can roll around in your sleep, you can get up, go to the bathroom, come back, everything is under control. Everything is very, very easy. But even then, it's still not like a normal night's sleep. So I tell my patients right from the get-go, I go, "Okay, when you go to a hotel, when you're going on vacation for like a week, or a few days, are you so tired that the first night your head hits that pillow and you're out? Or does it take you a couple of nights to get used to that bedroom environment before you can sleep comfortably?"

0:11:40 DS: Some say, "Oh, no, it takes me at least three days to get used to that bed." Which is quite normal, actually. When they say something like that, I tell them, "Well, we really should do an in-home study because we're going to get more accurate data." But if they say, "You know what doc, my head hits the pillow, and I am out. It doesn't matter where I'm at." I always joke that my wife can sleep on a bed of nails on her face. So if that's the case, and I say, "You should sleep in a lab because we'll get way more parameters." But then there's another caveat in that if their chief concern is insomnia, that they have difficulty falling asleep or staying asleep, if that's the only symptom, then an

in-home study isn't going to give me the kind of information I need. You know what I mean? The lab study is going to be much more detailed because we're going to see brain waves.

0:12:37 CS: You see this impaired delta or this impaired REM sleep, and so obviously this has a huge impact on the body's ability to heal and repair. So what are your steps then, Dr. Shirazi, that you do when you find this kind of impairment in sleep? How do you start correcting and improving people's sleep?

0:13:05 DS: Right, so once we have a diagnosis...for example, if they have apnea, we break it down, is it mild, is it moderate, is it severe, or is it a condition called respiratory effort-related arousals? Or is it some other kind of arousal like periodic limb movement or restless leg? The traditional treatment for someone with like restless leg or periodic limb movement is to actually measure their iron levels, to see if it's a deficiency in their iron that's causing that. If we're talking snoring or sleep apnea, then we look to see where the range is, so those with mild to moderate, which is the vast majority of people with snoring and sleep apnea, my go-to treatment is oral appliances. We have a device that uses echo sound to locate where the blockage in the area is, as they're sleeping, and of course we have a CT scan in the office, so we'll take a look at their sinuses to see if there's any tonsillar issue, hypertrophy.

0:14:19 DS: And assuming that they're a good candidate, then I choose an oral appliance that I think is going to match them. And plus we also have the factor of do they clench their teeth, do they have a jaw problem. And then we factor that into the equation as well. If they're very, very severe, then we actually do consider using some kind of positive airway pressure combined with

the oral appliance. But usually with the severes, we can get around the severe part and make it less severe, so that we can work on it on a more mild to moderate level.

0:14:56 CS: It sounds like you have so many great tools. I see a lot of restless legs in my patients so I appreciate you seeing the iron deficiency and some of these nutritional deficiencies that may be at play. But focusing on patients not getting essentially enough oxygen at night, you have these different modalities to help improve their airway function at night. And so tell us about appliances, I feel like this is still an area that I continue to learn about regarding how to direct and guide my patients if they need this work. Tell us about your approach and the work that you do in this way?

0:15:41 DS: I'd be delighted to, I'd absolutely be delighted to. But I do want to mention one thing which you said about the oxygen. The oxygen is super important, right? Because obviously, when our oxygen gets low, our blood pressure needs to go up just to force more blood, so that we have more oxygen getting to our brain and our vital organs. But believe it or not, more important than the reduction in oxygen is the arousals in the brain waves. When the brain is kicked out of deep sleep into lighter sleep, that causes a huge cascade of issues. That will kick up everyone's inflammatory markers with whatever measure you're using, CRP, interleukin, whatever you like, it will kick it up, and then you'll do your usual treatment for inflammation, but you won't get the results you expect because it's happening in your sleep. We need those stages of sleep so very badly, and arousals out of them are, to me, the absolutely worst part of apnea.

0:16:47 CS: I appreciate you saying that.

0:16:51 DS: But moving on to the appliances, so the appliances are very tricky. The range of kinds of appliances varies, we've got everything for what's called flat plane splints, to full-on sleep apnea appliances that pull your jaw an inch or two forward. So I'm not about either of those kinds of appliances. When I'm treating a TMJ or a sleep disorder at night, for me, it's all about function. And being able to function with proper nasal breathing and holding your jaw in what we call centric relation, that's going to be my goal. We know now that roughly 50% of the time the reason why we clench our teeth is because of a form of sleep apnea, those RERAs I was talking about, the respiratory effort-related arousals. That is the number one cause of grinding your teeth in your sleep at 50%. The other 50%, we use a very general term called stress. What they should say instead of stress is anything that stresses your autonomic nervous system. So for example, if you have a gluten or dairy allergy, and you have a slice of pizza from Costco before bedtime, for sure, you're going to clench your teeth that night even if you're not a clencher. Does that make sense?

0:18:20 DS: Anything that kicks up the autonomic nervous system. For someone that has chronic TMJ problems...So in my experience and the literature I've read, the number one cause of tension-type headaches is TMJ disorders and that bruxism I mentioned. The overlap into migraine has been overly abundant, I cannot tell you how many migraine patients I have resolved treating their TMJ and treating their sleep apnea. But even then, if they're wearing a day-time appliance, it's about function. We need to put them in a jaw position that's natural, but also holds what we call centric relation.

0:19:07 DS: And we do a neurological evaluation to find out, we call it the motor reflex test, to find out if their jaw problem is what's called an ascending problem or a descending problem. So someone could have a collapsed ankle, a rotated pelvis, subluxated spine, and then they end up with a jaw problem. And other people can have a jaw problem that can lead to a subluxated spine, a rotated pelvis, and etcetera.

0:19:40 CS: Got it. Keep going. I like that how you said that. Right, it's either way. So either the jaw can create all this imbalance in the rest of the body or the rest of the body can create imbalance in the jaw. I think that's an important point to bring up.

0:20:00 DS: Absolutely, and then we get to the part of the cranium and our cerebrospinal fluid pump. So the maxilla, the upper jaw, articulates with eight pairs of bones and the vomer, like the septum of the nose. And so when we look at skulls prior to the industrial revolution, everyone had nice wide arches. They had almost perfectly straight teeth. The space behind the wisdom teeth was so vast, they had room for another wisdom tooth. And they had very big turbinate space and very small maxillary sinus space. Right? So we also know that they breastfed for three to five years.

0:20:50 CS: Oh, wow.

0:20:51 DS: Of course, 300 years ago they didn't have processed food. When we look at cadaver skulls prior to the industrial revolution, we don't see degenerative changes in the jaw that much. And that really kind of depends on how long the individual lived, but we don't see that much change. But for the average normal, healthy person living in the United States, there's a 75%

chance that they have a jaw problem without even knowing it, and that could be clicking and popping, that could be arthritis, that could be jaw locking, it could be just pain, it could be a host of things, but it's in modern man that's considered much more common and accepting. Of course, not in my book.

0:21:49 CS: And I know you're getting there, but on the top of my mind, I have a 21-month-old daughter as we record this and I'm watching all of her teeth come in and just kind of seeing her jaw develop and I'm just thinking because of what you're going to explain, I'm thinking, how can I really optimize that her jaw grows in the healthiest expression that it can for her and that she doesn't have a narrow upper palate, and all of that. I'm super curious if you've seen some patterns or insights to help children develop a healthy jaw?

0:22:31 DS: Yes, absolutely, there are things that we can do at this age as well, so obviously, the breastfeeding would be amazing, but that is a very challenging thing for many many people to be able to breastfeed, especially for that length of time.

0:22:47 CS: Yes.

0:22:48 DS: So we have devices called myofunctional appliances, and they do have an infantile one that develops the jaw, that develops the sucking pattern where the tongue goes on the roof of the mouth. Of course, we need to be sure that any tongue ties and lip ties are released, that's super important.

0:23:07 CS: I think that's such an important thing to bring up because when she was born, she actually had lost weight and we found out she had a lip and a tongue tie. She got a frenectomy, I think at age three or four weeks old,

and it made a huge difference right away in her latch and her ability to feed, and she was totally fine. It's just amazing how commonly I see that. That's such a common thing now. I want all the young moms out there who have young babies to know about this, because I think it can be often overlooked initially, and it's amazing how many children have this now, so I'm glad you brought that up.

0:23:57 DS: Yes, absolutely. My son the same, he had the tongue tie and we had to release it more than once. So I wholeheartedly agree with you, and I'm glad more and more people are looking. I was impressed. We had our son here locally. I was very much on top of the nurse to make sure they weren't going to do any vaccine and she came and said, "Oh, he has a tongue tie." I said, "He does?" I said, "I'm so happy to hear that you guys are checking for tongue tie." It's protocol...It's absolutely a protocol.

0:24:36 CS: Oh, wow. So I derailed us, but I'm just thinking about how we can optimize the development, the natural development for people with young children and obviously addressing lip and tongue tie. Beyond breastfeeding as long as the mom can, do you have any other strong opinions around bottles or pacifiers or even nutrition that can impact that full expression of the jaw?

0:25:37 DS: I couldn't agree with more. If we can prevent this, we will have a whole new world that's better for our children. I couldn't agree with you more. So I guess we can start with the nutrition. As you know, during the first year of life, close to 100% of the immune system is derived from the gut and the gut bacteria. So having the breast milk where they receive their daily dose of probiotics is of course very, very useful. For those that can't, you can actually

get like a powdered goat milk which is like 99% identical to human breast milk and you can put probiotics in there and support their gut nutrition and their immune system that way.

0:26:24 DS: And because you're setting them up for life this is really, really important. Something that's very interesting, when teeth start to break through, almost every parent has noticed that the child will start to get the runs after their teeth come in. And the reason for that we find is when the child is toothless, their oral flora is all aerobic. But as soon as one tooth starts to break through, to create what's called a pocket, like a gum pocket, and the saliva can carry bacteria into this pocket where there is no oxygen, and the bacteria literally transform and become gram-negative anaerobic bacteria. And the child swallows this, and then develops the runs that first time. Okay, now you would think well, why would this happen? Well, when we break down food, it is the gram-negative bacteria that's digesting the fiber when it's in the small intestine. So we need the gram-negative bacteria to process this kind of solid waste.

0:27:51 DS: So as we get older, of course, having a diet that's not processed, but that's at least blended and soft, as soon as the teeth come through, I'd like to encourage as much chewy food as possible. So maybe you start off with some very steamed carrots, and you want to encourage that muscle activity of the jaw with chewing. It's the muscle activity that develops the mandible downward and forward. Does that make sense?

0:28:24 CS: Yes.

0:28:24 DS: Yes, and of course, we have appliances and then we have what's called myofunctional therapy where we can actually put it inside their mouth and they sort of chew on it, and when they chew on those little silicone bits, it has little flaps in there that encourage the tongue to go on the roof of the mouth. And as the tongue that's free of tongue tie is allowed to reside on the palate when we swallow, we actually activate the cerebral spinal fluid pump with each swallow and each breath. Makes sense?

0:29:00 CS: Yes.

0:29:04 DS: So for kids that are very fussy eaters and having them chew on things is a bit of a challenge, they have these little chew toys, and I'm not joking, they really are chew toys, they look like a little Y. You stick the V part of the Y over their what we call dental ridges, and you have them just chew on it. Clamp down, and it's fun for them, it helps with teething, it helps the teeth push through the gums faster, and it helps develop the jaw muscles which most children don't have today because so much of our food is so processed.

0:29:42 CS: Is there a resource to find those or to look that up?

0:29:44 DS: Yes. Myobrace and what's called Myo Munchee, particularly Myobrace, though, they have so much information on it. I believe it is myobrace.com, they are an Australian-based company. Actually, Myo Munchee is an Australian-based company too, but they supply these myofunctional appliances essentially from birth to senior, and they explain a lot of this information. On my website, I talk about it as well, tmjla.com or tmjcconejo.com, just go under the orthodontic heading, I talk about it. I'm not to the detail that

I'd like to, but I still give the lay person as much information as I can, and they're always welcome to ask me anything.

0:30:40 DS: But in that context, we want to develop the jaw, we want to encourage nasal breathing and nasal patency and we want to encourage proper mandibular muscular development, which includes the lips. A normal swallow involves a huge cascade of muscles where the teeth come together, the lips pierce, the tongue goes on the roof of the mouth in a wave, and we pass saliva.

0:31:14 CS: Got it.

0:31:16 DS: Yes, and it's interesting, I just thought of this to share with you. So I use that test, that neurological test I was telling you about, the motor reflex test, to determine neurological origin. And one thing that came forward from the orthopedic surgeon, his name is John Beck, he and his partner came up with this neurological test, and one of the things he told us was the brain prioritizes itself as bite, then breathing, then orthopedic balance. So when he taught us that, the whole bite more than orthopedic balance part didn't surprise us, because each tooth is over 1500 nerves, and most of those nerves are proprioceptive to tell the brain where it is in space.

0:32:04 DS: So if you're getting 32 teeth or even 28 teeth, each of them with 1500 nerves, that's way more sensation than your feet, that's way more sensation than your spine. It's getting your brain on balance, but we couldn't understand why would the brain prioritize the bite over breathing. You can go several days, weeks without eating but breathing, you really can't. And every-

thing we know about neurology is hinged around survival. So in terms of survival, that didn't make sense to us, so we thought, "Well, is it because we need to eat to get glucose to the brain?" No, no, because that uses ketones, we don't need glucose to the brain.

0:32:48 DS: So then we realized that one of the functions of swallowing is to let the brain know that the airway is clear of debris, right? We swallow 2000-3000 times a day. It's really unconscious, it is a survival mechanism, we cannot get out of it, which is another reason why TMJ problems are so mis-treated, because if you have a chronic TMJ problem and you're swallowing 2000-3000 times a day and your teeth are coming together, but your teeth are coming together in the wrong position or your jaw is coming back together in the wrong position, then you're never going to get a break, right?

0:33:33 DS: If you sprained your ankle, you can lay off your feet, you can put your weight on the other foot, right? But when you have a jaw problem, you never get a break. So when we swallow, we put our teeth together, we pass saliva just a little bit, and we clear the airway. And then we get to give the signal to the brain that it's safe to breathe. Does that make sense?

0:34:00 CS: I hadn't heard of that, but that makes perfect sense the way you just explained it.

0:34:04 DS: Yes, it took me years. I think about things all the time. Actually, a few months ago, I had an epiphany on how our brains work. I don't know if you're into this kind of thing, I am, obviously, but you'll see how my brain works. So we know that the brain makes plastic changes to itself, that means it literally changes the way it is up there, right? It happens with chronic pain,

and it happens with what we call PTSD, like a trauma, a conflict, whatever. I use New German Medicine, whatever you want to use to describe PTSD, okay? Now, when we look at lower mammals, we see that they, when it comes to eating, they just eat constantly, right? They eat, they're full, if they see some more food, they're going to just keep on eating because they don't know when the next meal is going to come, right?

0:35:10 DS: Now, imagine humans pick up a lot of these lower mammalian traits but then, as we're eating, we eat something poisonous. And as humans, if we see our child pass before our eyes, our parents pass before our eyes, another loved one pass before our eyes, even an animal, a pet, that is a PTSD. I don't care if you're a caveman or you're from 2021, okay? That's a PTSD. And if that happens, then that causes plastic changes, and if someone else that you procreate a child with also had a similar experience, well, now you're creating a child from epigenetics to genetics that has a program in it to be careful of what you eat because it might be poisoned. Does that make sense?

0:36:02 CS: Yes.

0:36:04 DS: I can see how our brains have evolved from the same pattern because I can see the way this neuroplasticity works. I'm always excited about neuroplasticity, I find the whole field absolutely amazing and riveting.

0:36:18 CS: It really is such an empowering way to look at the brain too, right? There's this whole opportunity for the brain to constantly evolve and re-pattern and rewire, given the right tools and the right information.

0:36:34 DS: All in the context of survival, it's absolutely amazing. So you asked so many questions...

0:36:42 CS: I know, I know. This is the first time we're talking and I could pick your brain all day because I think that the work that you do is so fascinating and so important.

0:36:53 DS: Well, if you want us to do another time where we go into more details about other aspects, I'm more than happy to do so.

0:36:58 CS: Yeah. I would love that, I would love that for sure. We'll do a part B to this.

0:37:02 DS: I'd love to. So for part A, what can I continue with?

0:37:05 CS: Well, I think I've cut you off in the journey to try to share with us really the type of appliances that you work with with adults to help improve their sleep. I know you work with ALF, and some of our patients have had great success with ALF devices. I think it's such a great tool and I would love to introduce that right now and share that with people, what it is, how it works and what you've seen with that?

0:37:36 DS: I'm so excited to talk with you about ALF. So ALF stands for Advanced Lightwire Functional, it was invented by a man named Darick Nordstrom. Darick, he's one of my mentors. I don't mean to be facetious, I don't mean to sensationalize it because everyone wants to sensationalize their own fields, right? I don't mean to do that at all. There's a lot of TMJ guys I've worked with that think that every single problem under the sun is caused

by TMJ in sync. No, it's not, okay? It's a component but it's not everything, right? But with Darick, I need to say this with sincerity that he is a one in a billion type of individual, there's maybe seven of him on the planet. He is a left brain genius but also a right brain medical intuitive, and he came up with this ALF 37 years ago.

0:38:35 CS: Wow. I have to pause you for a moment. So I have seen patients over the years in LA and I used to work with Dr. Whitney out of an osteopathic office in Santa Monica and I would go on the weekends and we would see patients, and then Dr. Nordstrom would work with a group of osteopaths. It was just this beautiful...I didn't know them. I was young in my career. I didn't understand like, "Oh, that's Dr. Nordstrom." And they were working on a patient, and I saw literally, maybe four or five osteopaths working on one patient. I just remember looking at it, I could tell whatever they were doing was such amazing, powerful, impactful work. And then as I learned more about this, it was just a foreshadowing in my early career about this. So as you talk about him, I have that impression and that vision of him working. I think he had a wine shirt on, very California. It was just really fun to witness.

0:39:46 DS: Yes, he's amazing. He is 100% egoless. He had no ego at all. He is the nicest person I know. So, the Advance Lightwire Functional...When he invented it, he wanted a orthodontic appliance. He was using a Crozat at the time. And he really felt it was a bit restricting, so then he added what's called an omega loop to it. And he noticed that people were coming back and claiming, "Oh, my kid doesn't have ADD anymore. My kid listens to me, he's not defiant anymore. He doesn't snore anymore." Today I could give you 200 studies easily, if not more, that show when a child has sleep apnea, any amount of sleep apnea, and ADD or hyperactivity or defiance syndrome, that

once you resolve their apnea, the disorder or symptoms either totally resolve or are greatly improved. But we didn't know this back then, obviously, right?

0:40:57 DS: So, he invented it and he was so excited. He wanted to share with all his dental colleagues up in Hollister, but no one would pay him any attention, they were quite cliquish up there. One of his patients had a regular osteopath, and the osteopath was noting that ever since they've been wearing this ALF, that he's able to do a lot more things. So he went and he met with the osteopaths. Instead of dentists, he met with osteopaths. And the osteopaths were so impressed by what he was able to do and he was so impressed to learn how the maxilla, the cranium, the swallow, the breathing pattern, and the posture itself is related so much to what they do.

0:41:48 DS: He would have patients where the osteopaths would say, "You know what, I've been adjusting this patient now for six months. I cannot get this SI joint to resolve." Right? And he goes, "Okay. If I could get this part, like say, the premolar section of the maxilla pushed out this way, I could fix it." He goes, "Oh, let me do that right now." So he would take the ALF out of the mouth, make the adjustment, put it back in, and the guy would say "You fixed it. You fixed it. It's done. This person doesn't have a problem." So he was able to learn from these osteopaths the relationship between the rest of the body and not just orthopedically, but with organs and with fascia, how it's all connected. And so he went on, and again, he doesn't have a patent on the ALF. He has over 1000 inventions. He hasn't patented a single one. He just went on to develop it into what it is now. So now there's a very, very few number of us, we call it a loyal following, that will use the ALF to help our patients.

0:43:00 CS: It's beautiful and I'm so thankful you share that energy of Dr. Nordstrom in how this works and how accessible he wanted to make this device. How do you work with a patient, what does a treatment process look like when you're working with a patient with ALF?

0:43:27 DS: So of course, we do an evaluation, we'd find out what their goals are, what I think we're able to do with the ALF, and of course, we take cone beam CT scans, so we can see what the airway and the structures look like, what the teeth look like. Then I design, I sit down and design the ALF, and then send it off to the lab, the lab makes it, we deliver it. And then we work with predominantly osteopaths. But also we work with craniosacral therapists, certain kinds of chiropractors that are more cranial-based, like the sacral occipital people. As long as they've got a strong cranial background and they don't use heave-ho forces, we use it. I have usually an agenda of how I want to develop the arch. It is almost always that I need to get transverse development and what's called sagittal, forward and back development.

0:44:32 DS: Almost all my patients need a little bit of mandibular movement, like the jaw needs to come forward. I actually started out in this ortho, by being what's called the class III dentist. A class III is someone with an underbite, where their lower jaw is ahead. And I started out by treating people who were told that the only way that they could fix their underbite was with orthognathic surgery. I actually wanted to be an oral surgeon at one time. I decided against it. But I witnessed the orthognathic surgery, and it's absolutely horrific. I'm not someone that's gory, I'm not afraid of surgery, but if you've ever watched an oral surgeon perform orthognathic surgery, I don't know if you can find any videos online, it is one of the most savage things I've ever seen in my life. And then to finish it off by bolting them down with metal bolts, on a

system that's supposed to flex and have a give to it, it just doesn't make any sense to me. So, where did I leave off? Forgive me, I...

0:45:50 CS: This was a surgical option, right?

0:45:55 DS: Thank you, the class III was a surgical option. So then we would start off with ALF therapy, we would develop the upper arch, release the tongue ties, release the nasal breathing that was blocked from the palatal extension. Because you understand, the roof of the mouth is the floor of the nose. So, when we're developing the maxilla, we get a reciprocal benefit in the floor of the nose, in terms of size and breathing ability. So we would do that and what we found was, we just changed the muscular habits of their jaw and their breathing, because it's always a functional approach. And they would go into, what we call class I. And they may no longer needed conventional surgery. We just finished them off with either braces or Invisalign. Does that makes sense?

0:46:44 CS: Yes. What a better option.

0:46:47 DS: Now, I did what's called Damon passive self-ligation orthodontics for a number of years, at least a decade. But in the last few years, my focus has been more on aligners, which is what Invisalign calls their trays, but we make them in-house. That way, nothing is outsourced to China, everything is hypoallergenic, we can test the patient if they have any reaction to the material before we do it. And so, after the ALF, we can finish up the dental on the bite with the aligners, and that's very convenient, most people love that.

0:47:27 CS: Absolutely. And how long does this process take? I'm sure people are wondering that.

0:47:38 DS: So in children, it depends on their rate of development and their age, and their issue. So a lot of time, these kids, sometimes all they need is myofunctional therapy or a myofunctional appliance to be worn either during the day or at night or both. And then an orthodontic intercepted phase can come later. But in a child, as we tap into their growth, we can get tremendous amount of growth in a year or two, no problem. In adults, it's actually the opposite, we have the slower we go, the faster it comes along. It cannot grow too fast on our adult patients. In the adults, usually a year is very, very typical, a year and a half, if it's a more severe case, or two.

0:48:37 CS: Got it. And then, you're opening up and improving, basically, drainage. I mean, what kind of improvements do you see not only in sleep, but also the lymphatic drainage of the brain?

0:48:52 DS: Oh, absolutely. They can actually report on the postnasal drip improvement right away. So if we had a cranial motion that stuck in flexion or extension, the ALF can break it out of that pattern. And therefore now, as it's moving, now we can actually get more pumping of the CSF and get that glymphatic system really moving, just working. Now, but here's how it multiplies with the ALF effect, is when someone puts their tongue on what's called the incisive papilla. It's called 'the spot' in myofunctional therapy. It's when we say the letter N, as in Nancy, it's where the tip of the tongue goes. And it's supposed to make a wave on the roof of the mouth.

0:49:46 DS: We put the omega loop, the main omega loop of the ALF, we put over that spot. And just by having that spot there and having the patient place their tongue on it, we see a great calming of the autonomic nervous system. Now, remember I said earlier that the whole clenching happens, basically because there's some kind of ANS disturbance? Well, when you have a home spot, home base for your tongue, now your autonomic nervous system is more calm and you're able to sleep through the night better without getting kicked out of deeper stages of sleep. Well, that's only going to feed your own body's ability to repair itself. Does that makes sense?

0:50:35 CS: Yes.

0:50:36 DS: And so we get this dual effect.

0:50:41 CS: That's great. What I'm also wondering is, is the ALF alone able to get this cranial rhythm in this glymphatic system working better? Or do you often pair the ALF with craniosacral therapy or osteopathic work? I mean, do you do the combination in your practice?

0:51:04 DS: Oh, I'm all about the combination in my practice, absolutely, it's got to be together. I don't want it to be just me, it takes a village, right?

0:51:17 CS: I agree.

0:51:18 DS: I like to work with a functional doc, I like to work with their osteopath, I like to work with the cranial sacral person, and, like I said, a cranial focused chiropractor. It just depends, I've met so many cranial sacral therapists that are just insanely gifted, insanely sensitive. They feel what's going on and

it's great. But what's interesting is, is because an osteopath is also a physician, that means they're going to have another level of understanding when they do those cranial adjustments. So for example, if an osteopath is palpating and doing osteopathy and cranial manipulation, and as they're touching, they feel that something is going on with the kidney, they can then say, "You know what? This is a very typical pattern when someone has hypertension. We need to check your heart, we need to check your autonomic nervous system." Right? Whereas someone who isn't a physician isn't going to have the kind of knowledge base that a physician is going to have when detecting organ and fascia issues. Does that makes sense?

0:52:33 CS: Yes, just more in-depth understanding and view of the body.

0:52:40 DS: Absolutely. I don't say this in any way derogatory to a cranial sacral therapist, but an osteopath, they have the cranium manipulation skills, and they have the medical background as well. So with the ALF, it plays well with the osteopath. So if the osteopath says, "Dave, I need more support on the right side, I need a little bit more development here. I need a little bit more mandibular guidance," whatever it is, then it could even be something where they need me to just add a bit of composite on top of the teeth to get the jaw where they want it. So then I'll guide them to where I need them to go. And as I'm moving the patient along, I'll say, "You know what? I notice that the wire wasn't expanding as well as I had been expecting these last few months. So can you help me out here and get me a little bit more rotation with the maxilla?" And they'll say, "Okay, of course."

0:53:46 DS: And they don't necessarily work with the maxilla, they'll work with other parts of the body to make sure the maxilla goes where it needs to go.

So I absolutely, wholeheartedly believe in working with an osteopath. When we came out of the hospital, thank God there was nothing wrong with my son, he was born perfectly healthy and is still perfectly healthy. We had an amazing osteopath named Jorge Marino come to our house and do his first osteopathic adjustment at home. It was delightful, absolutely delightful.

0:54:25 CS: I love that, I think that should be such an integrative part for not only mom and baby and birth but also after the birth. It's just such a important part of the process and allows our children to have the fullest expression of their physicality, right? There's so many of these tools and I don't want them to be lost, right? The traditional osteopaths are so gifted in that knowledge that's so important. I think it's just so important to keep these traditions alive.

0:55:04 DS: I wholeheartedly agree. I love them, I think they're amazing.

0:55:12 CS: So, Dr. Shirazi, I have kind of taken you all over the place, and that's how my brain is working today. I know that you're doing such amazing, valuable work, and I know we've shared some patients over the years, and I am just so grateful for your time. I absolutely would love to have you back, and we can get into the nitty-gritty in some of the details about a lot of the things that you've just introduced us to. If people are listening to us and, first of all, are wanting to see you, please share where your practice is. And then if they don't live in Southern California, how can they find a practitioner who does ALF?

0:55:57 DS: Most of my practice is in Thousand Oaks and in Brentwood. They're both suburbs of Los Angeles and my website is tmj.la and tmjcanejo. With the ALF, there is an ALF directory, you can just google "ALF directory

and ALF interface." You can actually just type in your zip code and find a local ALF practitioner.

0:56:32 CS: Great. Is there anything else that you want to share as we're wrapping up? Anything on your heart or your mind as we're closing the podcast today?

0:56:43 DS: Yes, I just want to give my sincere thanks to you, not just for today, which has been amazing, thank you so much, but also for all these wonderful webinars you've been putting together with Dietrich and all these really smart people. And they're all just gravitated to you because you exude all this health and wisdom and you want to get it out there and I just love that about you.

0:57:05 CS: Oh, thank you for saying that. I love this part of my work, connecting with pioneers and thought leaders like yourself and people who are doing just this amazing work. My passion is getting people better faster, and education is such a piece of that. So thank you for saying that, and I really appreciate it. We will absolutely have you back so people can learn more because I think this is just such an overlooked area, and underutilized part of medicine and dentistry that I want people to know about. Thank you so much.

Part 2

0:57:58 CS: Welcome, everyone. I am so honored to have back Dr. David Shirazi. We had a wonderful conversation that hopefully you've listened to, if not, please check that out in the podcast where we talked a lot about oral

health and TMJ, and orthodontics, and then, towards the end of our conversation, I started picking Dr. Shirazi's brain about pediatrics, even about my daughter being two and seeing her oral health develop and all her facial bones develop. I started picking his brain about this, and I just really wanted to do this topic justice in how we can prevent some of the downstream effects of improper breathing and improper facial development, so we can have healthy, happy people. Thank you so much for coming back, Dr. Shirazi, I really appreciate your time, you're such a wealth of knowledge.

0:58:43 DS: It is my sincere pleasure, you ask wonderful questions, I love your podcast, I love the material you have with Dietrich, it's so great. Thank you for doing what you do, really.

0:58:54 CS: Oh, thank you, well, we're all in this together. I know when we wanted to have this follow-up conversation, we were talking about our kids and how we can optimize their oral facial development in this whole world of orthodontics. And before we started having this conversation today you talked a lot about breathing, because of the work that you do with evaluating, and obviously optimizing breath work and oral health. Can you share, when we're thinking about the development of children and how we can optimize their health in general, how do we look for signs and prevent what you would call mouth-breathing and all the downstream ramifications of what happens with mouth-breathing?

0:59:39 DS: Well, to start off, some of the consequences of mouth-breathing, at an early age, is what's called Long Face Syndrome, you essentially adapt to just breathing through your mouth, so your mouth has to posture wider. And your muscles adapt to that, which then models the bone. So you get

what we call Long Narrow Face Syndrome. And your saliva dries up, which makes it a lot easier to get cavities, there's no longer a flow. You're much more likely to get enlarged tonsils and adenoids because the way the air is rushing past them, it's no longer moistened and warmed, it's just direct cold air. So those are some of the consequences. Some of the things we can watch out for...I know it's really cute to watch our children snore, but don't ignore it, it's not a little deal. Snoring is a sign of some kind of hypertrophy, be it in the soft palate or the adenoids or the tonsils, or even just mouth-breathing, that's one of those ways we snore.

1:00:57 DS: If they only do it occasionally, I would invite the parents to take a look at, okay, what did they eat that day, did they have a lot of dairy that day? Did they have a lot of wheat that day? And be mindful of it, and if they did, they probably want to avoid that. If they don't, if they've had a food sensitivity panel and you're avoiding all those IgG food intolerances, then you can go forward and maybe put an air filter in the room to pick up any dander or anything like that, you may want to check if you have pets if your child is allergic to pets. Just anything you can do to ensure that your child is breathing through their nose through the night. That's one of the most important times.

1:01:48 CS: And you're so wise to share about looking at food allergies as a trigger, kiddos often are very resilient and healthy, and so food allergies can be one of the first signs of any dysfunction in their body. From my perspective with dairy, that can really congest the lymphatic system, and I think about the tonsils and the adenoids as part of the lymphatic system, and kind of connected to the gut. So this whole oral area is connected to the gut, so is there an inflammatory trigger causing them to not breathe? That can be one of the first clues to looking at optimizing diet and the foundation for their health. In

our other conversation, Dr. Shirazi, you were talking about how you assessed sleep apnea in adults, and you have a sleep lab in your clinic, which is amazing. How do you take that next level of trying to understand if there's any impairment in sleep with a child?

1:03:00 DS: Right, so once the parents bring a prescription for a sleep study, either we can do the sleep study at home or in our lab, or in another lab, whichever is convenient for the parent and the child. We're looking for a few things. So there's two main kinds of apnea, one is obstructive, that's when literally, our tongue, our soft palate closes off our breathing for 10 seconds or more. Or it's so shallow that it causes 3% of our oxygen to dip. And the other kind of apnea, it's called central sleep apnea, where our brain tells our body not to breathe.

1:03:43 DS: And from all I can decipher the majority of the time the reason why we do this is from mouth-breathing. When we mouth-breathe, we out-gas too much end-tidal CO₂. We need to keep a certain level of carbon dioxide in our blood and in our tissue. We have, I don't know, hundreds of receptors for end-tidal CO₂, and we have maybe two for oxygen. That should tell us something. And we have a very narrow band of optimum carbon dioxide. If the carbon dioxide levels are not, we say, between 40-45 or 38-45, then what can happen is the oxygen can't liberate out of the haemoglobin. So it doesn't matter if you have a 100% oxygen saturation, you're not getting access to that oxygen.

1:04:46 DS: And so the mechanism the body has developed is to shut off the breathing entirely, there's no effort at all. In obstructive, you can see an effort, you can measure an effort; in central there's no effort. And once the person

stops breathing, their metabolism is still carrying on. Once their CO2 levels have risen enough, then the body will restore breathing. And that's how we diagnose it. So for me, it helps me determine if they have central or obstructive or both, it lets me see, "Okay, is this child more of a mouth breather or a nasal breather?" Does that makes sense?

1:05:31 CS: Yes.

1:05:31 DS: Because if they're nasal breathing and they still have apnea, then I'm going to be looking for more obstruction in their tongue and their throat. If they're central sleep apnea, I'm going to be looking for obstruction more in the nose. And then we make our recommendations on that. We go over their diet. We see if they need what's called functional orthodontics. So the palate, as we talked about last time, is the floor of the nose, right? And it articulates with the eight pairs of bones and the septum of the nose. So when we develop the arch, when we develop the maxilla, we're actually increasing the footprint of the nose dramatically, logarithmically, actually, way more than we're expanding the maxilla. And what we're also doing is we're taking this maxilla, if someone has a narrow passageway and they're mouth breathing and they have a narrow arch, by expanding it, we're not just expanding here, we're remodeling and bringing it down. So we're increasing the amount of tongue room, so the person can swallow on the spot with the tongue on the roof of the mouth, and we're widening and lowering the nasal floor and the nasal ceiling.

1:06:54 DS: So the septum, the vomer, starts at the maxilla and ends on the ethmoid bone, okay? And when we look at prehistoric skulls, by and large, we see perfectly straight septums. Hardly anybody had a deviated septum. They

had very big turbinate spaces and a very small maxillary sinus. And we know that they breastfed. We assume, based on what we could find, that they breastfed for three to five years. And in doing so, in developing the tongue on the roof of the mouth and really getting it to widen, we widen it, we have a nice wide turbinate space. And by dropping the maxilla, we now have more room vertically for the septum.

1:07:48 DS: But if we have a high arched maxilla, we have to deviate it just so we can fit it in the same space. So in other words, the vast majority of the time, we are born with a perfect sized septum for our head. And it's expected that we're going to be breastfeeding for a substantial amount of time and expanding our palate and chewing our food. We're supposed to chew food pretty much as soon as we have teeth. And it's the chewing, the masticating of food, that develops the height in this direction of the jaw. But going back into nasal breathing and having a flattened wide maxilla, this allows our nasal passage to be so much freer because it no longer has to cram itself in. And rather embarrassingly, not a dentist but a physician out in Australia...I believe his name was Peter Cistulli. He expanded the palate of an adult with a deviated septum. A physician expanded the palate of an adult and took before and after x-rays and corrected his deviated septum.

1:09:07 CS: Wow.

1:09:08 DS: And you would think that would motivate or shame the orthodontic community to do something about it. But that is one area of academia that is recalcitrant to any kind of change.

1:09:24 CS: Such a great explanation. And we hear that term thrown around all the time, "Oh, I have a deviated septum." And some of these people go into these horrific sinus surgeries that try to correct the deviated septum. And for some of the patients that I've seen, it's very hard to get that terrain reestablished once it's surgically operated on. I know we touched on that last time. But going back to this facial development, that was really a wonderful explanation. And here we are recording this in 2020, and I don't really know any child who's been breastfed three to five years.

1:10:08 DS: Me neither.

1:10:10 CS: Maybe here and there. Usually if there's a mom who's really passionate and has the time and effort and energy can do that.

1:10:17 DS: Right. Crunchy, crunchy moms.

1:10:18 CS: Right, crunchy moms. Maybe two, age two. Three to five is very uncommon. So with that being said, I have a lot of questions, but I'll stop at this point. So let's say moms who are listening, they have a young child under five. Maybe, let's say, in the two to three to four year range. We know that we can't replace nature, but how can we optimize that development?

1:10:50 DS: We can. And before I tell you how, I really want to make a point. By mentioning that the optimum is three to five years...My wife did it for nearly two years. She didn't work. She's a pharmacist, but she didn't work while in the first two years, so it was much more manageable for her. Not everyone has that luxury, right?

1:11:12 CS: Right.

1:11:12 DS: And in no way do I want anybody to feel less than if they weren't, yourself included, if they weren't able to breastfeed even a month, if you just couldn't do it, you just couldn't do it. I have a close family friend who could not. They had an infection behind their nipple, and they were told you can't breastfeed, so the first child, she was breastfed for three months and they told her, "Don't even bother with the second." She had a horrible guilt over it, but we all have to make do with the reality that we're in. And it's okay.

1:11:54 CS: It's a great point. You know, moms have guilt over so many things.

1:12:00 DS: So many things. And they're doing such a good job but they're so hard on their selves. Don't be so hard on yourself.

1:12:06 CS: You created a baby, right?

1:12:09 DS: You created a baby, you were walking around with this thing for nine months. Pulled it out of you.

1:12:13 CS: I know, right? So that alone, just feel good about that. And of course, we don't want anyone to feel shamed or blamed. I'm just solution-oriented. I'm just super curious, given the reality that that's just not our reality in modern life...

1:12:28 DS: Yes, modern life, indeed. So we actually do have what's called myofunctional appliances, it's like a little, if you will, a little chew toy, they're

silicone. One that you can put in and they can chew in this direction, but one that you can make or a dentist can make that's semi-moldable. And we can open it a little bit, we can activate it a little bit. So every time you come in, we just kind of make that a little bit wider and that works great. It's very simple. It's not toxic. It is effort, it is effort to get the child to use it and to explain to the parents what it's like. It looks very, very simple like, "Oh, I'm just wearing a mouth guard and my kid's just wearing a night guard," it's a lot easier said than done. It takes practice. It takes perseverance. I'm all about positive reinforcement when they wear it, do your best to avoid negative reinforcement, although that's hard. But you can actually have a paedodontist or a functional orthodontist like myself make something inside the mouth to kind of make it wider, and develop the height, for that matter.

1:13:54 CS: Are pacifiers working against this process?

1:14:00 DS: Well, they largely did. Largely, pacifiers they did. And that was because they were so hard. So what they did was, so you understand the purpose of the human nipple is to go inside the mouth and the baby to pinch off the base of the nipple with the tip of their tongue and squeeze the milk out from the palate, and that's how they learn how to swallow the correct way. Now, unfortunately, with these hard nipples, it just held the tongue down, right? And then in order to suck from this very hard nipple, they have to use their cheek muscles.

1:14:50 DS: Which had the reverse function, it narrows the arch when you use your buccinators like that, right? So they do make nipples that are very, very soft and collapsible, very thin silicone. Did you breastfeed at all?

1:15:18 CS: Yes, until about like 16 months.

1:15:21 DS: So do you ever recall what your nipple looked like after suckling?

1:15:27 CS: I do. [chuckle]

1:15:27 DS: It has a distinct shape, doesn't it?

1:15:29 CS: Yes.

1:15:30 DS: They make pacifiers in that shape, and they're very soft and those seem to be working okay. And some children need it to sleep, they have a very hard time where they can't sleep without it. But then, sleep so important, you know. We stubbornly went without the pacifier, and our son had horrific sleep the first two years, and therefore we had horrific sleep for the first two years. And I look back and I go, "That was probably a mistake." I wish I gave him a pacifier just to help with sleep.

1:16:15 CS: Yes, Ann Marie loves her binky. So we still have a binky, but some of the children don't take to it. Okay, so then we have this kind of natural process, and then there are some functional orthodontists like yourself that can create devices to help naturally expand that upper palate to make room for the sinuses to be open and not have a deviated septum. If a parent is listening who wants to be super proactive and let's say their kid's already five or so, at what age can we start looking at, okay, maybe this didn't happen optimally, or how can we correct it? I guess at what age do you look at correcting something that you see that hasn't fully developed?

1:17:09 DS: Excellent question. So it's always the sooner, the better, but we don't want to frighten people to think that, "Oh, my kid is 10 or 12 and it's too late." That's not the case. But to get in to someone that can just do an assessment and see what's normal for the child, there's a test with crackers, where you give the child some crackers and before they swallow, you ask them to stick out their tongue, so then you can see where on the tongue the cracker is. That tells us how they're chewing, and where they're placing their tongue during the chew, right? There are things that we can do to observe and see what the child is doing, and of course, as soon as the teeth come in, which is about six months, that's when you want to go to the dentist for the first time and see what's going on, right? Is it coming in at the right pace, at the right frequency and the right staging.

1:18:12 CS: We talked a little bit about this, but just for people who might be catching just this segment and then thinking about their children's health and orthodontics, there's definitely different approaches to orthodontics, but there's a whole system that helps to optimize and expand the upper palate. We talked about the ALF, can you just remind people what that is and how this all integrates?

1:18:38 DS: Yes, so the ALF is a brilliant invention designed by an extremely brilliant and special individual about 37 years ago, and it stands for Advanced Lightwire Functional, it's a wire that hugs the teeth on the inside, so it's very hard to see, and it has a series of loops in it and the main loop goes over the area where we want the person to start to swallow. So one of its main functions is to be a myofunctional appliance. You know how you get a hair in your mouth and you go nuts until you get the hair out? Well, by having that little

metal over what's called the incisive papilla, your body wants is curious, why is that there, why is it there? It constantly keeps the tongue there in order to kind of pay attention to it.

1:19:38 DS: And then from there, you can teach the person to swallow in the correct manner. From there, we can activate it, which means we either expand or bring forward, whatever the child needs. Usually people need both by my anecdotal observation. And we just get the person where they need to be, and then height-wise, we can do that in any number of ways, it just depends. What I mean by height is the height of the jaw, and if they have an overbite, we end up bringing their jaw forward so that it's no longer an overbite. For an underbite, we have a different protocol, actually.

1:20:20 DS: To be honest, that's how I got into all this. I was doing orthodontics and a bunch of kids came in. My mom's a dentist, I'm actually at her office today. And a bunch of people brought their kids, they were like 15, and they had the underbite and they went to three orthodontists and all three of them said, "Oh, we need to do surgery, there's no other way." And I'm like a year out of school and I'm like, sure, we could do it without surgery. And we ended up doing it, and I'm sure these white hairs, I don't know if you can see them, they came from my first few patients. But it was immensely satisfying to not only change their profile, their self-esteem, change their airway, change the way their jaw functions up here, and like we mentioned before, to just avoid that horrible jaw surgery. It's called double jaw surgery or MMA surgery, where they break the maxilla, reposition it and break the jaw, reposition it, and then bolt it down. It's pretty gnarly, I have to admit.

1:21:37 CS: Yes, my heart goes out to people who have felt that that's their only option.

1:21:44 DS: Or they have done it. If you don't address the functional reason why they have the problem to begin with, it is possible that the problem can come back. It's not that rare for someone to have that horrific profound surgery a second time, for the same reason as they did the first. It happens.

1:22:17 DS: I was actually at a conference where an oral surgeon was speaking about it, and I don't know if you've heard of Joy Moeller, but she is probably one of the most famous myofunctional therapists in my area, and she stood up to ask a question, she just said, "Did anyone look at their habits? Did anyone look at their breathing or their swallowing habits?" And it was a panel of dentists and surgeons, and they're just kind of looking at each other, like, "Yeah, no, we never did." And all of us sitting around her were just laughing like, "Yes, I don't think they did either."

1:22:56 CS: Oh, my God, going to such a drastic intervention before looking at all the things you've just shared. Well, Dr. Shirazi, people are probably thinking, "Oh, my gosh, I want my children to do whatever you're saying or find a dentist who understands this." Do you feel like you have a wide network of colleagues, or do you feel like this is still, like many things in the alternative medical world, that it's still just these pockets and niches and the word still has to get out? How many people are trained in looking at this at this point?

1:23:37 DS: So the number of people trained and looking for it is definitely on the rise. It's definitely growing. The amount of ALF practitioners is still very,

very, very small. It's very rare. I think maybe a thousand practitioners on the planet. So it's a pretty small group. There's like 250,000 dentists just in the US. So a thousand of us doing it is a pretty low number. There is a website www.alfresources.com. We've got a list of all the ALF practitioners, and you can look it up.

1:24:22 DS: In terms of a more comprehensive functional approach for TMJ and sleep disorders in adults, you can go to tmjtherapycentre.com, and there's a list, there's 65 centers throughout the world that have that sort of our philosophy. And locally, my website, www.tmjla.com and www.tmjconejo.com, pretty easy to remember.

1:24:53 DS: www.tmjla.com is probably going to be the easiest one to remember for Los Angeles. But yes, it's growing. I mean, 20 years ago, when I became a dentist, I was shocked and appalled at the gross ignorance and lack of motivation to grow and change by the orthodontic academic community. And two years ago, they came out with what they call, their white paper, which is a nice way of saying clean slate, right? The title was amazing, it was on airway and orthodontic, right? And you're thinking, "Oh, God, finally. Finally they've come and see the light," right?

1:25:45 DS: And they managed, it was so embarrassing, they managed to include airway in almost every wrong way you can possibly imagine it to be addressed in orthodontics. Like they showed a CT scan, and they would show the airway on the CT scan. And they would say, "Oh, look how small the airway is, I'm sure this kid has sleep apnea. Oh, my God." And it's like, well,

maybe that's a small airway to begin with, but sleep apnea is a neuro-muscular disorder or it's a central disorder. So that X-ray is not showing what the kid is doing, sleeping on their back in the middle of the night, let alone how many times an hour they're doing it.

1:26:37 DS: So, there's still a lot of progress to be made, a lot of progress. And I am finding more and more orthodontists that are open to learning new things and accepting the research. The older ones? God help us all. But I am finding more and more people that I consider part of my tribe, and people that I value and I respect what they do.

1:27:08 CS: Well that's encouraging. And I know it's this mixed bag, right? The frustration still with just knowing what you know, and wanting, of course, that knowledge to be everywhere, but that's hopefully what this conversation and all the efforts and work that you're doing will bring, there will be a tipping point. We feel the same way with our work as well. I do feel like, where here we are again, a couple months after we recorded the first part, but we're in the throes of this COVID-19 situation, and I think even though this is horrific on so many layers and we all have all of our opinions, but there's also underneath this, I think potential for a new transformation in our healthcare system to occur.

1:28:00 CS: And so, we have to hold to that optimism, and we touched on it before. We were chatting again that with this completely stressful, unprecedented time, there's a lot of stress in every person's body and household and environment, and we can't escape this chronic stress that we're in because we're in such an unknown and uncertain time. So that translates into our bodies in so many ways, and a lot of people carry stress in their jaw. Can you

share some of your thoughts and tips on how we can support people to navigate the stress, and maybe connect with their jaw? And how we can maybe find some peace and some relaxation techniques, just some tools to navigate this time?

1:28:54 DS: Yes, it is a challenging time right now. But I will say this, the blessing of challenging times, when we look at it historically, is that some of the ugliness in the world, if not all of it, needs to be brought to the surface before it can change. It's been so far pushed down in our subconscious, it's been pushed down into the alleys and not addressed. And now a lot of things are coming to light, a lot of things are coming to light. And it's ugly and it's painful and it's difficult. But sometimes it reveals the problem that we never dealt with before. So I do appreciate the blessings in it, I've definitely observed different colleagues and friends responding to it in ways that surprised me. And really, for me, it showed me the difference between, forgive me for being egotistical, but a real doctor versus someone who thinks for themselves, who can actually look at two sides of an argument and go, "Well, there is truth to this and there's truth to that." And then can say, "Okay, well, let's put that together and find common ground," right? I'm finding a lot less than I thought, like I had before...

1:30:15 DS: So the biggest thing I can say about clenching, obviously, to me, the most important thing about clenching is having an appliance in your mouth to shut off your ability to clench 50%-100%. That, to me, is the most important thing, because we will clench our teeth for any reason you can think of. Anything that disrupts the autonomic nervous system will make us clench our teeth. So if we get disturbances in our sleep, like snoring, we'll clench, our mouth is open, we'll clench. If we have a gluten intolerance and

then we have a slice of pizza and we go to bed, we're going to clench. Someone cuts us off on the freeway, or we see something horrible, I don't recommend watching MSN, by the way, just the mainstream news, just avoid the news at all costs. Okay?

1:31:07 DS: And if you must watch the news, go look at it online, so you can look at text bulletin points. To go on, take television or cable, and watch just negativity after negativity, really does nobody any good whatsoever, so just avoid that. And second, one of my teachers is Eckhart Tolle, and his whole ethos is about the power of now, being in the moment, and one of his meditations is on feeling the gratitude of all that you have and all that is working in the now. Anxiety often comes from, "What is the future going to be like?" Some may argue that all of anxiety is, "What is the future going to be like?" And it's uncertain times right now. So when we focus on the now and also the breathing, by slowing our breathing, we are actually telling our autonomic nervous system we're not in danger. When we're in fight or flight, we're breathing heavier, we're priming our muscles, getting ready to run away or fight, or do whatever we need to do to survive. When we consciously stop and just focus on making sure you're breathing in and out through the nose, and I'm very much for a 2:1 breathing, which is for every, let's say, four seconds of inhale, you do eight seconds of exhale. Everyone's going to have their own sort of number 10 and 5, 6 and 3, whatever works for you. But breathing at a very nice, slow, steady rate and don't make it forced, make it whatever is natural for you.

1:33:07 DS: And then once you find out what your natural slow exhalation is like, make your inhalation match that at half the rate. Like we talked about

earlier about end-tidal CO₂, when we nasal breath slowly in and out, we increase our end-tidal CO₂ to the normal level, which then switches our autonomic nervous system to the parasympathetic and lets our nervous system know, and I'm anthropomorphizing, it lets our autonomic nervous system know, "We're okay right now, we're not in fight or flight, we're in rest and restore." And while we're in the rest and restore, we think about all the things that we're grateful for, it's like sitting up on that bed right now. It's so comfy, and I'm thinking about how wonderful my son is and how funny he is. He's funny, he's so naturally funny. And I'm so grateful that my patient's pain broke. It's really made my day. I couldn't stop thinking about it all day. It was great. I think I'm going to own this one for a long time, it's so great. And you do that until sleep just happens naturally. And when you do this you're kind of putting those thoughts into your dream state, and it's a lovely sleep.

1:34:44 CS: I think that's such an important point. That's a really empowering point too. I love gratitude as an energy and a practice, because it immediately shifts how you're feeling when you think about people you love, or the people that you are helping or the beauty of nature or the miracle of life. It's a completely different energy than the energy of fear, anxiety and all the things that we're trying to navigate right now. So I think that's a beautiful, beautiful insight. I love Eckhart Tolle's work as well, I think that's a really great inspiration.

1:35:38 CS: Well, Dr. Shirazi, I know we could talk all day and I just love your work and just your presence and your sincerity, and I know that you're so highly skilled. You have so much amazing training and background, and what you've done with all that is really, really wonderful. So can you just share

again, how people can find out more about your clinics, and if they wanted to work with you, where would they find you?

1:36:07 DS: Well, thank you for asking, and I really love you, and I love what you're doing and that you're really bringing a lot of peace in the world by empowering people to take over their own health, to make better decisions for themselves, to just say, "Yes, I know you've been to a million doctors, and they all said the same thing. Maybe they're not all right." I said to my mom, as I told you, my mom is a dentist...And she's in that generation where you just believe whatever the doctor tells you. I've said to her before, "Maybe he doesn't know everything. I don't know, maybe." And that sort of thing.

1:36:49 DS: So our website, they both go to the same landing spot, but tmjla.com is the easiest way to find both our offices, one is in Thousand Oaks, one's in Brentwood. Our phone number's on there, you can email us, there's just so many ways you can get ahold of us. And you can come and see us. If we can be of service, we'd love to be.

1:37:19 CS: Thank you. Well, I hope more people continue to find you and your work, and thank you for educating our community. Thank you for your time, it was really a joy to have you do both of these segments, so thank you so much.

1:37:32 DS: It was my sincere pleasure, thank you so much.